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High-Performance Work Systems and Key Employee Attitudes:

The Roles of Psychological Capital and an Interactional Justice Climate

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High-Performance Work Systems and Key Employee Attitudes:

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## High-Performance Work Systems and Key Employee Attitudes:

### The Roles of Psychological Capital and an Interactional Justice Climate

#### Abstract

While there is evidence that high performance work systems (HPWS) are related to positive employee attitudes, the underlying mechanism is not yet thoroughly understood. Similarly, though the benefits of employees' psychological capital (PsyCap) in the workplace are well documented, little is known about the extent to which PsyCap stems from the context in which people work. Adopting a multi-level approach and using the ability-motivation-opportunity (AMO) framework and the conservation of resources (COR) theory as theoretical backdrop, we develop and test a moderated mediation model to explain how organization-level HPWS relate to individual employee work attitudes (job satisfaction and affective organizational commitment) that reflect well-being through the mediating mechanism of employees' PsyCap. Analysis of multi-source data from 569 employees in 44 firms showed that HPWS were positively related to job satisfaction and affective commitment, and that these relationships were partially mediated by PsyCap. Furthermore, moderated path analysis revealed that an interactional justice climate strengthened the direct effect of HPWS on PsyCap and work attitudes as well as the indirect effects of HPWS on work attitudes. The theoretical and practical implications of these findings are discussed.

**Keywords:** High performance work systems; employee attitudes; employee well-being; psychological capital; interactional justice climate; ability-motivation-opportunity; conservation of resources; multi-level

### High-Performance Work Systems and Key Employee Attitudes:

#### The Roles of Psychological Capital and an Interactional Justice Climate

High performance work systems (HPWS) are seen as a group of separate but interconnected Human Resource (HR) management practices that work in synergy to enhance employee and organizational outcomes (Appelbaum, Bailey, Berg & Kalleberg, 2000; Huselid, 1995). HPWS are linked with positive outcomes that include favorable individual employee attitudes (Gkorezis, Georgiou & Theodorou, 2018; Kehoe & Wright, 2013; Zatzick & Iverson, 2011). Employee attitudes are often indicators of employee well-being (Grant, Christianson & Price, 2007), the most typical such attitudes being job satisfaction and organizational commitment (Grant et al., 2007; Van de Voorde, Paauwe & Veldhoven, 2012). Though until recently not in the foreground within the mainstream discourse of HPWS, employee well-being is important both as an end by itself (ethical considerations) and as a means to an end (Guest, 2017; Heffernan & Dundon, 2016). The latter refers to the idea that HPWS that enhance well-being also improve performance through the enhancement of well-being (Guest, 2017; Huang, Ahlstrom, Lee, Chen & Hsieh, 2016; Peccei, Van de Voorde & Van Veldhoven, 2013; Van de Voorde et al., 2012), for which there appears to be some support (Ogbonnaya, Daniels, Connolly & Van Veldhoven, 2017; reviews by Peccei et al., 2013; Van Voorde et al., 2012). For the above reasons, the study of how HPWS relate to the workplace attitudes of job satisfaction and organizational commitment is important.

HPWS is an organization- (or unit-) level phenomenon while employee attitudes (and well-being) are (or start as) an individual level phenomenon (Peccei et al., 2013; also, Renkema, Meijerink, & Bondarouk, 2017). Though most empirical research that studied the

relationship has adopted same-level designs, studies that looked at the link between organization- (or unit-) level HPWS and individual employee's job satisfaction and organizational commitment are in existence (Gong, Law, Chang & Xin, 2009; Heffernan & Dundon, 2016; Messersmith, Patel, Lepak & Gould-Williams, 2011; Takeuchi, Way & Tian, 2018; Wu & Chaturvedi, 2009). However, maybe as a reflection of the general state of research in HPWS (e.g., Boxall, Guthrie & Paauwe, 2017; Chapman, Sisk, Schatten & Miles, 2018; Jiang, Takeuchi & Lepak, 2013; Fu, Flood, Bosak, Rousseau, Morris & O'Regan, 2017) knowledge about the mechanisms underlying the link between organization-level HPWS and workplace attitudes at individual level is not yet exhaustive (Heffernan & Dundon, 2016; Takeuchi et al., 2018). Hence, adding to our knowledge of the mechanism underling this link is important.

In this study we argue that employees' psychological capital offers an account for the link between HPWS at the level of the organization and individual employees' job satisfaction and organizational commitment. Psychological capital (PsyCap) refers to the psychological resources, in the form of self-efficacy, optimism, hope and resilience, an individual possesses and can draw upon (Luthans & Youssef, 2004). PsyCap can be enhanced (Newman, Ucbasaran, Zhu & Hirst, 2014; Luthans, Youssef-Morgan & Avolio, 2015), and because it pertains to employees' capacities it is a resource that organizations can use to their advantage (Youssef & Luthans, 2013; Luthans & Youssef-Morgan, 2017). We argue herein that organization-level HPWS nourish individual employees' PsyCap, which in turn improves their attitudes towards their jobs (job satisfaction) and their employers (affective organizational commitment).

Our argument is complementary to, rather than negating, the social exchange account that has been the dominant so far. That account is based on social exchange theory (Blau, 1964), and argues that because employees appreciate the benefits of HPWS (e.g., opportunities for training and learning, valued rewards, career development, and opportunities for participation) they reciprocate in the form of positive attitudes (Gong et al., 2009; Kehoe & Wright, 2013; Takeuchi, Lepak, Wang & Takeuchi, 2007; Takeuchi et al., 2018; Wu & Chaturvedi, 2009). In this respect, the positive attitudes are the result of employees' perception that their interests are served. PsyCap pertains to "who you are" (Luthans, Luthans & Luthans, 2004; Luthans, Youssef & Avolio, 2007), hence, the principle is different: HPWS do not only invoke thoughts of personal benefit to employees who in turn reciprocate; but also HPWS cause actual change to the psychological capacities of individual employees for the better, which in turn improves their attitudes towards their job and their employer.

Being cognizant that contextual (e.g., Peccei et al., 2013) and cultural (e.g., Farndale & Sanders, 2017; Fu, Bosak, Flood & Ma., 2019) factors are likely to affect the way HPWS relate to outcomes, we study the interactional justice climate in the organization – employees' beliefs about whether organizational agents treat employees with respect and convey sufficient and timely information – as moderator. It has been pointed out that the benefits of HR practices are contingent upon employees' belief that these are fairly implemented (Blader & Tyler, 2003).

We chose to focus on interactional justice, instead of other forms of justice, for the following reasons: first, HR systems are primarily implemented by organizational agents (managers and supervisors) who interact with employees for that purpose (e.g., Frenkel,

Sanders & Bednall, 2013; Russell, Steffensen, Ellen, Zhang, Bishoff & Ferris, 2018; Townsend, Wilkinson, Cameron & Bamber, 2012; Zhang, Akhtar, Bal., Zhang & Talat, 2018). Amongst all forms of justice, it is interactional justice that is more under the control of organizational agents (Folger, 2001; Rafferty & Restubog, 2011; Scott, Colquitt & Paddock, 2009); second, unlike events that trigger perceptions of distributive and procedural justice that are only occasional, those events that trigger judgments about interactional justice are very frequent because interactional justice is involved in most encounters between organizational agents and employees (Bies, 2005; Bies & Moag, 2006). That means employees have multiple opportunities to form interactional justice beliefs, and also interactional justice beliefs are salient; third, and equally important, the study took place in China, where interpersonal relationships and the treatment employees receive at personal level have a central role in organizational life (Bozionelos & Wang, 2007; Wu, Huang, Li & Liu, 2012). We focused on justice climate because HPWS were considered at the level of the organization; hence, it should be employees' shared belief about how the organization via its agents treats people that should matter most in the way HPWS relates to attitudinal outcomes.

The Ability-Motivation-Opportunity (AMO) framework (Appelbaum et al., 2000; Bailey, Berg & Sandy, 2001; Lepak, Liao, Chung & Harden, 2006) and the conservation of resources (COR) theory (Hobfoll, 1988, 1989) serve as our theoretical backdrop. The AMO is an established framework within the HPWS discourse, while COR theory is seen as a promising theoretical lens to understand how HPWS relate to subjective outcomes such as attitudes that reflect employee well-being (Peccei et al., 2013; Shantz, Arevshatian, Alfes & Bailey, 2016). Drawing from the AMO framework, we argue that when employees have the



abilities needed to perform well, the motivation to achieve, and the opportunity to input and contribute their PsyCap increases. COR theory argues that individuals strive to retain, maintain and gain resources, contextual and personal (Hobfoll, 2002). We pose that HR practices in the form of HPWS are contextual resources that foster development of employees' personal psychological resources, namely their PsyCap. Furthermore, COR theory suggests that environmental features may facilitate the process by which one resource type fosters acquisition of another resource type (Hobfoll, 2001). The interactional justice climate can be seen as such an environmental feature, whether employees perceive that people in the organization are treated fairly at personal level should impact the degree to which HPWS cultivate employees' PsyCap.

Using multi-level data from HR managers and 569 employees in 44 Chinese firms, we show that organization-level HPWS render employees more satisfied with their jobs and more committed to their employers by means of enhancing their PsyCap, and that the relationship becomes especially strong under organizational climates of high interactional justice.

Hence, the study contributes as follows: First, it demonstrates that one route for the beneficial effect of HPWS is via the increase of employees' capacities in terms of enhanced PsyCap that is what employees can do. Second, it further consolidates evidence on the top-down influence of organization-level HPWS on two key individual level employee attitudes that are also reflective of employee well-being. Third, it addresses a similar gap in the PsyCap literature where there is insufficient knowledge of the effects of organization-level factors on individual employees' PsyCap (Hsu & Chen, 2017; Mills, Fleck & Kozikowski, 2013; Newman, Ucbasaran, Zhu & Hirst, 2014). Fourth, the identification of a moderator, that is a

boundary condition, provides firms with useful insight about contextual factors that must be looked after if HPWS are to fulfil their promised potential, a topic the literature has not sufficiently focused on so far (Hong, Jiang, Liao & Sturman, 2017; Zhong, Wayne & Liden, 2016).

### **Theoretical Background and Hypotheses**

#### **High-Performance Work Systems and Psychological Capital**

Though there is no universal agreement upon the specific practices that compose HPWS (other terms utilized include high-performance, high-involvement, and high-commitment work systems or work practices, best HR practices, and strategic human resources management, Lepak et al., 2006; Posthuma, Campion, Masimova & Campion, 2013), HPWS have typically been conceptualized and operationalized as the degree of organizational investment in key HR practices that include selective recruitment, systematic training and development, results-oriented performance appraisal, valued rewards, open communication, and employee participation and autonomy (e.g., Huselid, 1995; Posthuma et al., 2013; Subramony, 2009; Sun, Aryee & Law, 2007). This approach to the definition and measurement of HPWS was also adopted in the present study.

Psychological capital (PsyCap) is defined as “an individual’s positive psychological state of development characterized by (1) having confidence (efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering towards goals, and when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain

success” (Luthans et al., 2007, p. 3). Empirical research attests to its developable nature, that it is malleable and can be cultivated by workplace conditions (Luthans & Youssef-Morgan, 2017). Considering this, we pose and test the hypothesis that PsyCap is enhanced by HPWS.

#### **Argumentation based on the AMO framework.**

The AMO framework posits that HPWS enhance a workforce’s ability with practices that mostly fall within the “people flow” component of HPWS (Bamberger & Meshoulam, 2000): ensuring with sound staffing practices (e.g., targeted recruitment and sophisticated selection techniques) that the right individuals enter the organization who, along with existing employees, are consistently trained and developed (e.g., Appelbaum et al., 2000; Jiang, Lepak, Hu & Baer, 2012; Lepak et al., 2006; Subramony, 2009). Being cognizant that they possess the knowledge, skills, and other qualities required to perform their roles, but also that these skills will be updated or recalibrated when needed, should enhance employees’ PsyCap. For example, belief in one’s competence to face job demands and deliver performance should raise self-efficacy and optimism: self-efficacy increases with task mastery (Bandura, 1997), and optimism pertains to faith in one’s capacity to positively influence future outcomes (Carver & Scheier, 2002). Moreover, constant updating or recalibrating of skills should nurture resilience, the ability to adapt to change, deal with uncertainty, and rebound from setbacks (Masten & Reed, 2002). Finally, extensive training to develop broad skills (Bamberger & Meshoulam, 2000; Pfeffer & Veiga, 1999) should cultivate hope, because such training would nourish capacity to generate alternative routes towards solving problems and overcoming obstacles (Snyder, 1994; 2002).

The AMO model also posits that HPWS enhance motivation by means of HR policies

that mainly fall within the “appraisal and rewards” component of HPWS (Bamberger & Meshoulam, 2000): results-oriented performance appraisals, availability of valued rewards, and internal career ladders (e.g., Appelbaum et al., 2000; Jiang et al., 2012; Lepak et al., 2006; Prieto & Santana, 2012; Subramony, 2009). This should also augment individual employees’ PsyCap. For example, results-oriented appraisals serve as goal-setting mechanisms: challenging targets are agreed upon and ways to reach them are negotiated. Challenging goals along with roadmaps and tools to attain them should nurture hope, energy directed towards a goal along with awareness of different pathways to reach that goal (Snyder, Irving & Anderson, 1991; Snyder, 2002). Furthermore, clear goals, the skills to achieve them, and feedback on goal attainment create a positive psychological state of flow (Csikszentmihalyi, Abuhamdeh, & Nakamura, 2005). Flow is accompanied by the conviction that one is able to meet demands and bring positive outcomes on one’s own (Bakker, 2008), which means self-efficacy (Bandura, 1997) and optimism (Seligman, 1998), respectively.

Finally, according to the AMO model HPWS enhance opportunity via the “employee relations” component (Bamberger & Meshoulam, 2000): offering employees chances to participate in decision making, setting open communication channels, and allowing autonomy in utilization of skills, knowledge and experience (Lepak et al., 2006; Prieto & Santana, 2012; Subramony, 2009). Opportunity enhancement should also be linked with PsyCap increase. Knowing they can mobilize skills and knowledge according to their own choices should foster employees’ self-efficacy, a firm belief that one can organize, utilize, and direct one’s resources as needed (Bandura, 1997). Belief that they can influence future directions by inputting decisions should boost optimism, positive expectations about future outcomes

(Schneider, 2001). Open communication and involvement in decision making should increase awareness of developments and changes, hence, the capacity to react and bounce back in the face of challenging and adverse events, which is resilience (Masten & Reed, 2002). Finally, autonomy and opportunities to deploy the entire repertoire of one's talents should boost hope, through an awareness that alternative routes to reach a goal are available (Snyder et al., 1991).

The components of HPWS operate in synergy (e.g., Delery, 1998; Horgan & Mühlau, 2006; Huselid, 1995), hence, the effect of organization-level HPWS on individual PsyCap will be characterized by cumulativeness and efficiency. Cumulativeness means that the same component resource of PsyCap may be nourished by various components of HPWS, augmenting the effect. For example, we contemplated that broad skills training (ability-enhancing component of HPWS) should boost resilience. However, resilience should also be strengthened by open communication and employee participation in decision-making – opportunity-enhancing component. This means a stronger effect on PsyCap because of the cumulative effects of different HPWS components. Efficiency signifies greater certainty for the realization of the hypothesized effect (i.e., increase in PsyCap): if a HPWS component does not operate optimally, another component will be in place to accomplish the outcome (e.g., Delery, 1998). For example, in a particular organization performance appraisal (motivation-enhancing component) may fail to develop a clear view of alternative ways to achieve set goals, and hence, will not be effective in cultivating hope. This deficiency, however, may be compensated for by autonomy and choice in the utilization of one's talents (opportunity-enhancing component), which should promote hope (as seen earlier).

**Argumentation based on COR theory.**

The conservation of resources (COR) theory (Hobfoll, 1988, 1989, 2002) provides further theoretical justification for expecting a relationship between organization-level HPWS and individual employees' psychological capital. According to COR theory, individuals seek to retain, protect and accumulate resources. Resources are objects, conditions, energies or personal attributes that are functional and valued either in their own right or because they facilitate attainment of valued goals (Halbesleben, Neveu, Paustian-Underdahl & Westman, 2014; Hobfoll, 1988, 1989). Resources are distinguished into contextual and personal (Hobfoll, 2002). The former are located in an individual's immediate environment. Examples from the work context include learning and development opportunities, performance feedback, autonomy, and opportunities to input decisions (Demerouti, Bakker, Nachreiner & Schaufeli, 2001; Fan, Liu & Zou, 2018; Hobfoll, 2011; Ten Brummelhuis & Bakker, 2012), all these practices have been characterized as HPWS. Personal resources are located within the individual and can be physical, affective, psychological and intellectual (Hobfoll, 2002). Personal psychological resources pertain to individuals' evaluations of their own capacity to control and influence their environment successfully (Hobfoll, Johnson, Ennis & Jackson, 2003), and this is where the components of PsyCap (self-efficacy, hope, optimism and resilience) fall (also Constantini, De Paola, Ceschi, Santori, Meneghini & Di Fabio, 2017; Hobfoll, 1989, 2002; Xanthopoulou, Bakker, Demerouti & Schaufeli, 2009).

A central assumption of COR theory, which is supported by empirical research (Weigl, Hornung, Parker, Petru, Glaser & Angerer, 2010; Xanthopoulou et al., 2009), is that the resources individuals possess help them to obtain additional resources (Hobfoll, 1989, 2002)

in a process of “gain spiral” (Hobfoll, 2001, 2011; Ten Brummelhuis & Bakker, 2012). The gain spiral may start from contextual resources that stimulate the generation of personal resources (Ten Brummelhuis & Bakker, 2012). Indeed, Hobfoll (2011) notes that whether employees have the resources to develop and grow depends on whether organizations provide the appropriate environment in terms of necessary systems, policies and opportunities. Based on this reasoning, we argue that contextual resources in the form of HPWS should foster the development of personal psychological resources in the form of PsyCap.

In addition, within the boundaries of COR theory different resources may contribute to the same effect (Halbesleben et al., 2014). This concurs with the synergetic operation of practices contained within HPWS (e.g., Delery, 1998; Horgan & Mührlau, 2006; Huselid, 1995; Saridakis, Lai & Cooper, 2017), and means that the effect of organization-level HPWS on individual PsyCap will be characterized by effectiveness and cumulativeness.

Effectiveness means increased certainty for the realization of the hypothesized effect (i.e., increase in PsyCap), because in the event that one HPWS sub-system does not operate optimally another sub-system will act as substitute. Cumulativeness means that the same component resource of PsyCap may be nourished by various HPWS practices, augmenting the effect. This means that cumulatively these different HPWS practices will have stronger effects on PsyCap.

Finally, the notion of resource caravans within COR theory (Hobfoll, 2001, 2002) suggests that certain resources do not exist in isolation but rather in aggregate, when one of them is present other related resources are also present and increase their potency. The four constituent resources of PsyCap act as a resource caravan because they mutually reinforce

each other and form a higher-order core factor (Gavrilov-Jerkovic, Jovanovic, Zuljevic & Brdaric, 2014; Youssef & Luthans, 2013; Luthans et al., 2015). This implies that enhancement of one PsyCap resource by HPWS is likely to help boost the other PsyCap resources, leading to an overall increase in PsyCap.

*Hypothesis 1:* Organization-level HPWS will be positively related to individual employees' PsyCap.

### **HPWS, Psychological Capital and Employee Attitudes**

There is burgeoning evidence of a relationship between PsyCap and desirable employee attitudes (Datu, King & Valdez, 2018; Karatepe & Talebzadeh, 2016; Paek, Schuckert, Kim & Lee, 2015). Attitude formation is influenced by individuals' affective states, positive affect leads to positive evaluations and interpretations of events, conditions and interactions, and hence to more favorable attitudes and *vice versa* (Forgas, 2006; Weiss & Cropanzano, 1996). Strong PsyCap should, therefore, lead to the experience of positive affect because it brings sanguine expectations for future outcomes and a belief in one's ability to control one's fate and deal with potential challenges and setbacks (Avey, Luthans, Smith & Palmer, 2010; Tugade & Fredrickson, 2004). This enables us to posit that employees with stronger PsyCap will report greater job satisfaction and affective organizational commitment because their positive affect drives them to evaluate their jobs and employers more favorably. In other words, PsyCap is an antecedent to job satisfaction and organizational commitment.

*Hypothesis 2:* PsyCap will be positively related to job satisfaction (H2a) and affective organizational commitment (H2b).

From the viewpoint of COR theory, the process of resource gain, where contextual



resources generate personal resources, leads to positive work outcomes (Hobfoll, 1989; Ten Brummelhuis & Bakker, 2012). These include favorable work attitudes such as job satisfaction and organizational commitment (Ten Brummelhuis & Bakker, 2012). According to COR theory, therefore, we may expect organization-level HPWS to generate positive workplace attitudes amongst employees by means of developing their PsyCap, given that PsyCap is more proximal to individual work attitudes than HPWS. In the meanwhile, we have seen that empirical research highlights a link between HPWS and employee work attitudes. The above discourse directs towards a mediating role of PsyCap in the relationship of HPWS with job satisfaction and affective organizational commitment.

*Hypothesis 3:* PsyCap will mediate the cross-level relationship between organization-level HPWS and individual employees' job satisfaction (H3a) and affective organizational commitment (H3b).

### **The Moderating Role of an Interactional Justice Climate**

It has long been argued that whether organizations meet their goals depends upon the creation of climates where employees perceive that organizational practices are fairly implemented (Gelens, Dries, Hofmans & Pepermans, 2013; Greenberg, 1990). This is in line with COR theory's suggestion that environmental conditions may facilitate (or hinder) the process of resource gain (Hobfoll, 2011; Ten Brummelhuis & Bakker, 2012), which helps explain why resources that appear valuable do not always have the expected effect (Hobfoll, 2001; Halbesleben et al., 2014). Specifically, authors point that HPWS may sometimes fail to deliver because their effectiveness is contingent upon the way managers communicate and implement them (Fan et al., 2018; Russell et al., 2018; Zhang et al., 2018). Applying this idea

to the present study, we speculate that HPWS, which are contextual resources, are more effective in producing gains in employees' PsyCap, a personal resource, when there is a climate of high interactional justice within the organization.

Organizational justice climate is the extent to which employees believe that organizational agents treat members of the organization fairly (Li & Cropanzano, 2009; Naumann & Bennett, 2000). Interactional justice refers to the personal treatment employees believe they receive from the organization and its agents (Bies & Moag, 1986; Tyler & Bies, 1990), and has two components: informational - communication of sufficient information with respect to policies and decisions - and interpersonal - treatment with respect and propriety (Bies, 2005; Colquitt, 2001; Greenberg, 1993). Following from the general definition of justice climate, we view interactional justice climate as the extent to which organizational members believe that line managers treat employees fairly when they interact with them at the personal level. Given the considerable variance across firms in the way organizational agents implement HPWS (Nishii & Wright, 2008; Sikora & Ferris, 2014), there should also be substantial variance between organizations in the way employees perceive that managers treat members of the organization when performing HR-related activities.

A climate of high interactional justice renders employees more trusting towards management (Den Hartog, Boon, Verburg & Croon, 2013; Kernan & Hanges, 2002) and their own line managers (Ambrose & Schminke, 2003). Trust, in turn, makes resource acquisition by individuals more likely (Halbesleben & Wheeler, 2015). Given that PsyCap is a resource, a high interactional justice climate should magnify the effects of HPWS on the development of

employees' PsyCap. From the perspective of the AMO model, there are also reasons to expect that a climate of high (vs. low) interactional justice magnifies the effects of organization-level HPWS on employee PsyCap. From the viewpoint of gained trust (above), higher trust in management should further boost the gains in PsyCap (articulated in H1). To illustrate this with respect to the ability-enhancing dimension, if employees trust organizational agents in the way they handle selection, training and career management the gains in self-efficacy and optimism (articulated in the development of H1) will be augmented. From another perspective, in a climate of high interactional justice (employees share the belief that people are treated cordially and communication is timely and sincere) the nourishing effects of HPWS on PsyCap will be stronger. To illustrate with the opportunity-enhancing dimension, chances to input decisions and autonomy in skill utilization should have a stronger nourishing effect on confidence (self-efficacy), hope and optimism when people believe that their views and choices will be met with propriety, consideration and will be given sincere feedback.

*Hypothesis 4:* Interactional justice climate will moderate the cross-level relationship between HPWS and PsyCap in such a way that when the interactional justice climate is high the relationship between HPWS and PsyCap will be stronger.

### **The Moderated Mediation Model**

It follows, therefore, that HPWS will more strongly relate to employee attitudes through PsyCap when the interactional justice climate is high. This is because of the hypothesized stronger relationship of organization-level HPWS with individual employees' PsyCap under a climate of high interactional justice, meaning that these elevated levels of PsyCap will nurture especially positive attitudes towards the job and the organization. We therefore propose a

moderated mediation model (James & Brett, 1984; Preacher, Rucker & Hayes, 2007) in which HPWS and the justice climate interact to influence work attitudes through PsyCap.

*Hypothesis 5:* The interactional justice climate will strengthen the indirect effects of HPWS on employee job satisfaction (H5a) and affective organizational commitment (H5b) through PsyCap, in such a way that when the interactional justice climate is high HPWS will have a stronger relationship with employee attitudes.

The conceptual model is summarized in Figure 1.

## **Method**

### **Participants and Procedure**

Data were collected from 44 high-tech manufacturing enterprises located in six urban cities (Shenyang, Anshan, Dalian, Changchun, Qiqihaer, and Harbin) in northeast China. We focused on high-tech manufacturing enterprises because in the Chinese context such enterprises are more likely to make use of HPWS. Each company had at least 100 full-time employees and was more than five years old. Sixty-five companies that met these criteria were approached in the first stage, of which 44 (employee number *range* = 117 – 588, *M* = 291) agreed to participate. There were no significant differences in size and age between companies who agreed and did not agree to participate. Each HR department provided a list of full-time employees from which a random sample was selected (15 to 20 employees in each company). In total, 720 questionnaires were distributed, accompanied by an envelope to enclose the response and a cover letter that stressed the voluntary nature of participation. Employees returned 569 valid responses (78.8% response rate) that were matched with the 44 responses from HR managers. The mean number of employees who responded per firm was

12.93 ( $SD = 7.79$ ), which allowed meaningful multi-level analysis. We tested whether the probability of remaining in the final sample ( $n = 569$ ) among those who were contacted ( $n = 720$ ) could be explained by demographics (i.e., age, organizational tenure and gender). The result showed that the demographic profile of those who responded was not different from those who were sent the questionnaires ( $\chi^2 = 9.07$ ,  $ns$ ).

HR managers (72.7% women) had a mean age of 41.5 years ( $SD = 5.89$ ) and mean organizational tenure of 10.67 years ( $SD = 8.51$ ). Employees (52.8% men) had an average age of 34.88 years ( $SD = 7.24$ ), a mean tenure of 5.75 years ( $SD = 4.6$ ), and 62.4% of them held bachelor's degrees or beyond.

## Measures

The scales were translated using the back-translation procedure (Brislin, 1986) and were piloted with 16 full-time employees from a company that did not take part in the main study. Unless otherwise stated, all scales were Likert-type with 1 to 7 response format.

*High-Performance Work Systems.* The HR manager within each firm assessed on a scale of 22 items the extent to which their organization made use of seven core HR practices: extensive training, empowerment, results-oriented performance appraisal, employee competition and discipline management, employee selection, information sharing, and reward management. Items were adapted from existing measures (Evans & Davis, 2005; Su & Wright, 2012; Sun et al., 2007), or were originally developed to capture facets of HPWS, including employee competition and discipline management that are especially relevant to the Chinese context (e.g., Danford & Zhao, 2012; Su & Wright, 2012). Cronbach  $\alpha$  was .94. The scale is found in the Appendix.

A confirmatory factor analysis (CFA) with HPWS treated as second-order factor and the seven practices treated as first-order factors indicated reasonable data fit [ $\chi^2(188) = 341.57$ , NFI = .897, IFI = .935, TLI = .919, CFI = .933, RMSEA = .056] with strong individual item factor loadings (range = .530 – .724), in line with the theorization of HPWS as an aggregation of multiple dimensions (Takeuchi et al., 2007; Takeuchi, Chen & Lepak, 2009). This supported operationalizing HPWS as a higher-order latent construct composed of the seven dimensions. Accordingly, we averaged items in each dimension to create dimension scores and we used these as indicators for the latent construct of HPWS in the analysis.

*Psychological capital.* This was measured with the Psychological Capital Questionnaire (PCQ) (Luthans, Avolio, Avey & Norman, 2007; Luthans, Youssef et al., 2007) that contains four six-item sub-scales. Cronbach  $\alpha$  was satisfactory for all subscales (self-efficacy = .90, hope = .87, optimism = .85, and resilience = .82) and for the overall PCQ scale (.94). As suggested by Luthans, Avolio et al. (2007), PsyCap was modelled as a latent second-order factor comprising four first-order factors. A CFA suggested that the second-order factor model fitted the data reasonably well [ $\chi^2(244) = 469.35$ , NFI = .904, IFI = .927, TLI = .913, CFI = .926, RMSEA = .068], with all items loading significantly ( $p < .001$ ) on their corresponding factors, and each first-order factor loading heavily on the higher-order factor (loadings range = .873 – .956). Hence, the four dimensions were combined into one aggregate index reflecting an individual's PsyCap.

*Interactional justice climate.* This was assessed with an adaptation of Colquitt's (2001) nine-item scale ( $\alpha = .92$ ). The study focused on the climate of interactional justice, hence, the original items were reworded to refer to all employees and not only to the respondent. In

addition, “organization” was used as the reference entity. Sample items include “have supervisors treated employees in a polite manner in your organization?” and “have supervisors been candid in their communications with employees in your organization?” Consistent with theory and past research (Walumbwa, Hartnell & Oke, 2010; Walumbwa, Wu & Orwa, 2008), individuals’ evaluations were aggregated at the level of the organization. Further support for the aggregation was provided by the intra-class correlations [ICC(1) and ICC(2)] and the within-group agreement [ $r_{WG(j)}$ ]. The ICC(1) and ICC(2) value of .21 and .77, respectively, and the mean [ $r_{WG(j)}$ ] value of .78 supported the aggregation of individual responses at organization-level (e.g., Liao & Rupp, 2005; Liu, Chen & Yao, 2011).

*Job satisfaction.* This was measured with the six-item scale (e.g., “I am satisfied with the nature of the work I perform”) of Tsui, Egan and O’Reilly (1992). Cronbach  $\alpha$  was .87.

*Affective organizational commitment.* This was measured with the six-item scale (e.g., “I really feel as if this organization’s problems are my own”) of Meyer, Allen and Smith (1993). Cronbach  $\alpha$  was .78.

Correlational analysis showed a strong relationship between job satisfaction and affective commitment ( $r = .68, p < .001$ ). That was in line with the fact that despite being clearly distinct constructs job satisfaction and organizational commitment tend to correlate highly, which may raise doubts as to whether respondents perceive them differently (Harter & Schmidt, 2008). To remove any concerns we performed a CFA that indicated reasonable data fit for the two-factor model [ $\chi^2(73) = 217.33$ , NFI = .883, IFI = .915, TLI = .901, CFI = .914, RMSEA = .081], but poor fit for the single-factor model [ $\chi^2(74) = 420.59$ , NFI = .774, IFI = .817, TLI = .803, CFI = .816, RMSEA = .151]; thus, demonstrating that the constructs

measured by the scales were perceived as different by respondents.

*Controls.* At individual level, we controlled for employee demographics, including gender, age, education level, and organizational tenure. At organizational level we controlled for organizational size and age, because these might relate to variations in HPWS across organizations (Liao, Toya, Lepak & Hong, 2009; Snape & Redman, 2010; Sun et al., 2007; Takeuchi et al., 2009).

Data were collected from two different sources (HR managers and employees). However, because a number of variables (i.e., PsyCap, interactional justice, job satisfaction, affective organizational commitment) were assessed via employee self-reports we tested for the possibility of common method bias (CMB). The Harman single factor test (Podsakoff, MacKenzie, Lee & Podsakoff, 2003; Podsakoff & Organ, 1986), which has substantial sensitivity in detecting CMB (Fuller, Simmering, Atinc, Atinc & Babin, 2016), yielded four factors with eigenvalues greater than one that accounted for 69.85% of the total variance. The first factor accounted for 23.53%, which is way below half of the total variance accounted for (Podsakoff & Organ, 1986). As additional testing, we utilized the unmeasured latent factor construct (ULMC) test (Podsakoff et al., 2003). The addition of a common method factor to the four-factor model did not improve the fit: the changes in the fit indexes ( $\Delta\chi^2 = 388.541$ ,  $\Delta df = 52$ ,  $p < .01$ ,  $\Delta NFI = .009$ ,  $\Delta IFI = .012$ ,  $\Delta TLI = .012$ ,  $\Delta CFI = .013$ ,  $\Delta RMSEA = .003$ ) were clearly below the recommended values to indicate a more parsimonious model (i.e., increase for at least .02 in CFI, Vandenberg & Lance, 2000; decrease of at least .015 in RMSEA, Chen, 2007). These results suggested against presence of CMB.

### **Analytical Approach**



Given the multi-level nature of the data (individuals nested within groups), we utilized Hierarchical Linear Modelling (HLM2) with HLM 6.06. The moderated path analysis approach (Edwards & Lambert, 2007) was utilized to test the mediated moderation hypotheses 5a and 5b. This approach addresses the shortcomings of Baron and Kenny's (1986) moderated causal steps approach, and more clearly delineates the moderated and mediated nature of the relationships among variables (Liu, Liao & Loi, 2012). Finally, we conducted simple slope tests at low and high levels of the interactional justice climate (i.e. at values of one standard deviation below and above the mean score of the variable, Preacher et al., 2007), and plotted the positive cross-level moderating effects following the procedure recommended by Aiken and West (1991).

## Results

### **The main and mediating effects of PsyCap.**

Table 1 presents descriptive statistics and inter-correlations. Table 2 summarizes the results of the multi-level analyses that tested hypotheses 1 to 4. Hypothesis 1 predicted a positive relationship between HPWS (level 2) and PsyCap (level 1). Model 2 suggested a significant positive relationship of HPWS with PsyCap ( $\gamma = .28, p < .01$ ), lending support to Hypothesis 1. Hypothesis 2 (H2a and H2b) proposed a positive relationship of PsyCap (level 1) with job satisfaction (level 1) and affective commitment (level 1). Models 6 and 10 indicated significant positive relationships of PsyCap with job satisfaction ( $\gamma = .52, p < .01$ ) and affective commitment ( $\gamma = .50, p < .01$ ). Therefore, H2a and H2b were both supported.

Hypothesis 3 (H3a and H3b) posited that PsyCap (level 1) would mediate the cross-level relationships of HPWS (level 2) with job satisfaction (level 1) and affective

commitment (level 1). Considering that testing for indirect effects should be conducted with the use of a product of coefficients (MacKinnon, Lockwood, Hoffman, West & Sheets, 2002), we utilized the PRODCLIN program (MacKinnon, Fritz, Williams & Lockwood, 2007) to test that hypothesis. Models 5 and 9 indicate significant relationships between HPWS and job satisfaction ( $\gamma = .44, p < .01$ ) and affective commitment ( $\gamma = .39, p < .01$ ). Models 7 and 11 show that HPWS remained significantly related to job satisfaction ( $\gamma = .30, p < .01$ ) and affective commitment ( $\gamma = .18, p < .05$ ) after the inclusion of PsyCap, which was significantly related to job satisfaction ( $\gamma = .44, p < .01$ ) and affective commitment ( $\gamma = .39, p < .01$ ). The PRODCLIN results indicated that the indirect effects of organization-level HPWS on individual-level job satisfaction and affective commitment via PsyCap were significant. Specifically, the 95% confidence intervals (CI) of the indirect effects were [.07, .21] and [.12, .27] for job satisfaction and organizational commitment, respectively, none containing zero. These results together suggested that PsyCap partially mediated the effects of HPWS on job satisfaction and affective commitment, lending support to H3a and H3b.

#### **The multi-level interaction between HPWS and the interactional justice climate.**

As seen in Table 2, the interaction effect of HPWS (level 2) with the interactional justice climate (level 2) on PsyCap (level 1) was significant ( $\gamma = .33, p < .05$ ). We plotted this positive cross-level moderating effect and conducted simple slope tests (Aiken & West, 1991). Low and the high interactional justice climate were operationalized at one standard deviation below and above the mean score of the variable (Preacher et al., 2007). Figure 2 shows that under a high interactional justice climate the relationship between HPWS and PsyCap was stronger ( $\gamma = .61, p < .01$ ) than under a low interactional justice climate ( $\gamma = .15,$

$p < .01$ ). Therefore, Hypothesis 4 was also supported.

### **The moderated mediation model.**

Hypothesis 5 (H5a and H5b), which posited that the interactional justice climate moderates the indirect effect of HPWS on job satisfaction and affective commitment via PsyCap, was tested with the use of the moderated path analysis approach (Edwards & Lambert, 2007). As shown in Table 3, under a high interactional justice climate the indirect effect of HPWS on job satisfaction via PsyCap was stronger and significant at higher level ( $\gamma = .29, p < .01$ ) than under a climate of low interactional justice ( $\gamma = .08, p < .05$ ). The difference was significant ( $\Delta\gamma = -.21, p < .01$ ), lending support to H5a. The results (Table 3) also indicated that the indirect effect of HPWS on affective commitment via PsyCap was stronger and significant at a higher level under a high interactional justice climate ( $\gamma = .24, p < .01$ ) than under a low interactional justice climate ( $\gamma = .08, p < .05$ ). The difference was significant ( $\Delta\gamma = -.16, p < .01$ ), which lent support to H5b. We conducted simple slope tests and charted these moderating indirect effects (Figures 3 and 4).

The results (Table 3) also revealed partial significant second-stage moderation effects (Edwards & Lambert, 2007). Specifically, the relationship of PsyCap with affective commitment controlling for HPWS varied significantly across different levels of the interactional justice climate ( $\Delta\gamma = .13, p < .05$ ), whereas the difference in the second-stage effect of PsyCap on job satisfaction was not significant ( $\Delta\gamma = .03, ns$ ). The differences of the direct effects of HPWS on job satisfaction ( $\Delta\gamma = -.15, p < .01$ ) and affective commitment ( $\Delta\gamma = -.24, p < .01$ ) were significant at different levels of the interactional justice climate. Hence, overall the results provided evidence for first-stage moderation, second-stage

moderation, moderated direct effects, and moderated indirect effects via PsyCap.

### **Discussion**

The main objectives of the study were to address gaps in the literature by investigating the mediating role played by PsyCap in the relationship between organization-level HPWS and the key work attitudes of job satisfaction and organizational commitment that reflect employee well-being; and to test whether an interactional justice climate moderates the effects of HPWS on these attitudes through employees' PsyCap. By supporting the hypotheses, the findings vindicated the motives behind the investigation and have a number of theoretical and practical implications.

First, by demonstrating that PsyCap mediates the relationship between organization-level HPWS and individual employee job satisfaction and organizational commitment, the study contributes towards further opening up the so-called “black box” of the relationship between HPWS at the level of the organization and individual well-being, an issue of importance that is now receiving attention (e.g., Guest, 2017; Ogbonnaya et al., 2017). More specifically, building on the AMO model and the key tenets of COR theory, the work at hand shows that the resources provided by organization-level HPWS nourish the personal psychological resource of PsyCap, which in turn results in higher job satisfaction and organizational commitment. PsyCap pertains to “who you are” (Luthans et al., 2007), meaning that HPWS cause actual changes to the psychological capacities of individual employees for the better. Given that gains in PsyCap persist over time (Dello Russo & Stoykova, 2015), the effect can be enduring. The present study complements the research that draws on the social exchange account to explain the effects of HPWSs on job satisfaction and

organizational commitment, as it illustrates the veracity of an alternative – but not mutually exclusive – route. The idea that the two accounts should be seen as complementary is reinforced by the fact that we only found evidence of partial mediation.

Second, by showing that the direct and indirect relationships studied depend upon the climate of interactional justice in the organization, the study highlights the need to understand how the organizational context in which HPWS are implemented affects their impact. More specifically, the findings imply that the benefits of HPWS for key employee attitudes can only be fully realized when organizational agents provide adequate information and act in a fair and respectful manner when implementing such practices. This is in line with the view that the effectiveness of HPWS is contingent upon whether they are implemented under climates of fairness (Gelens et al., 2013; Greenberg, 1990), but also with the more general view that the effectiveness of HPWS depends on characteristics of the environment (e.g., Boxall, 2012).

Third, by considering and confirming an organization-level factor, HPWS, as a source of development of PsyCap the study responds to calls for identifying organization-level antecedents of individual employees' PsyCap by means of appropriate methodologies, such as multi-level designs (Newman et al., 2014). Knowledge of organization-level antecedents of PsyCap is still limited (Hsu & Chen, 2017), and the present study contributes to this domain.

Finally, a secondary contribution of the study was that it was conducted in China. Allegedly, East Asian economies started paying systematic attention to HR systems with some delay compared to western economies, while they display different cultures and workplace traditions (Ahlstrom, Levitas, Hitt, Dacin & Zhu, 2014; Chang, Wu & Liu, 2018). The findings, therefore, serve as evidence for the positive relationship of HPWS to attitudes

that reflect employee well-being regardless of national culture and economic context.

### **Practical Implications**

Authors, including Hobfoll (2011), suggest that if organizations are to maximize the chances of meeting their objectives they must provide environments with resources that enable workers to grow. Our results concur with this point by suggesting that HPWS relate to individual employees' psychological resources, which in turn relate to key work attitudes that likely bring performance benefits (Van de Voorde et al., 2012). Given that increases in PsyCap can last for considerable periods (Dello Russo & Stoykova, 2015) the advantages HPWS bring should also be long-lasting. In addition, considering that the positive effects of PsyCap extend to a variety of work outcomes beyond employee attitudes (Newman et al., 2014; Luthans & Youssef-Morgan, 2017), the implication for management is that HR practices that fit into the notion of HPWS add substantial value.

However, the findings also demonstrate that to maximize these benefits of HPWS, firms must strive to build climates of high interactional justice. This means that organizations should carefully manage the elements of this form of justice. That may involve providing training and rewards to assure that managers and supervisors offer timely, clear, and plausible explanations about decisions and new policies and communicate at every level in a considerate and respectful manner.

PsyCap enables people to successfully deal with excessive demands (Luthans et al., 2015). Therefore, an allusion of the study is that via their cultivation of PsyCap HPWS could buffer or mitigate the negative effects of work intensification, which refers to work situations that are perceived to impose excessive and constantly increasing demands to employees

(Franke, 2015). Work intensification is allegedly common, including in Chinese firms (Dai & Tao, 2019; Yuan, 2017), and can have negative consequences for employees and subsequently employers (e.g., Mariappanadar, 2016; Omari & Paull, 2015).

### **Limitations and Future Research**

Although we believe that there is no serious reverse causality problem in the study, the cross-sectional research design limits confidence in causal explanations. As a result, future research is encouraged to adopt designs in which independent, mediator, and outcome variables are measured at different points in time. In addition, the sample was restricted to a single industry (i.e., high-tech manufacturing enterprises). Though the AMO model itself was developed by studying manufacturing firms (Appelbaum et al., 2000), a more diverse sample of firms across different industries would allow for greater confidence in making generalizations.

Although we found that the interactional justice climate moderates the relationships between HPWS, PsyCap, and key employee attitudes, research on contextual moderators is in its relatively early stages. Investigation of additional boundary conditions is in order. Furthermore, interpersonal relationships and the treatment received by management occupy a central role in Chinese organizational life. National culture, which affects the way people experience and interpret events, may influence the nature of relationship between HPWSs and employee attitudes (Farndale & Sanders, 2017). Whether interactional justice climate strengthens the relationship of HPWS with individual-level employee attitudes that reflect well-being in societies where interpersonal relationships matter less is an issue that needs testing in future research.

HPWS were measured from the point of view of HR managers regarding the HR systems in place. Though this appears reasonable, there are two caveats to keep in mind. First, it is not necessarily the case that employees experience these systems as intended (Bowen & Ostroff, 2004; Kehoe & Wright, 2013). Notwithstanding that empirical research finds moderate to strong associations between organizational agents' ratings' and employees' perceptions of HPWS (Liao et al., 2009; Messersmith et al., 2011), future research could tap employees' own perceptions of HPWS (Kehoe & Wright, 2013). Second, the ratings of HR managers may not be accurate reflections of HR practices in place (Gardner & Wright, 2009; Wright, Gardner, Moynihan, & Allen, 2005). Hence, future research should consider utilizing ratings from multiple organizational agents, for example agents chosen according to their knowledge of HR practices that are specific to particular employee groups (Gardner & Wright, 2009; Bou-Lluisar, Beltrán-Martin, Roca-Puig & Escrig-Tena, 2016).

Interactional justice climate was considered at the level of the organization, and was measured by means of aggregating responses of participants within each firm. Evidence attests to the conceptual and empirical validity of organizationally focused interactional justice (Byrne, 1999; Griffin, 2010; Rupp & Cropanzano, 2002). Using the organization as referent was in line with the fact that HPWS were also considered at the level of the organization, but also with the fact that the focus of commitment - one of the outcomes studied - was the organization (Lavelle, Rupp & Brockner, 2007). However, workplace justice is embedded within a social context, and the most salient social context in the case of interactional justice is arguably the immediate work group of the individual, such as the team or work unit who share the same line manager (Ambrose, Schminke & Mayer, 2013; Liao &



Rupp, 2005). Hence, future studies to replicate and extend the present work should consider employing interactional justice climate at the level of the work unit. Furthermore, taking into account that similarity of source or referent is likely to reveal stronger relationships (Rupp & Cropanzano, 2002; Lavelle et al., 2007), future studies may also consider the interaction between HPWS at work unit level (Den Hartog et al., 2013) and interpersonal justice climate at that same level.

Finally, in the present work we argued for the PsyCap perspective as alternative and complementary to the social exchange perspective for the link between HPWS and individual employee attitudes. The results vindicated the theoretical argumentation behind the PsyCap account. However, our case would be stronger if we had included in the design of the study variables that reflect the social exchange account and we had controlled for them. Future studies, therefore, should employ variables that reflect both perspectives in order to evaluate their relative merits.

## References

- Ahlstrom, D., Levitas, E., Hitt, M., Dacin, M., & Zhu, H. (2014). The three faces of China: Strategic alliance partner selection in three ethnic Chinese economies. *Journal of World Business, 49*, 572-585.
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Ambrose, M. L., & Schminke, M. (2003). Organization structure as a moderator of the relationship between procedural justice, interactional justice, perceived organizational support, and supervisory trust. *Journal of Applied Psychology, 88*, 295-305.
- Ambrose, M. L., Schminke, M., & Mayer, D. M. (2013). Trickle-down effects of supervisor perceptions of interactional justice: A moderated mediation approach. *Journal of Applied Psychology, 98*, 678-689.
- Appelbaum, E., Bailey, T., Berg, P., & Kalleberg, A. (2000). *Manufacturing advantage: Why high-performance work systems pay off*. Ithaca, NY: Cornell University Press.
- Avey, H. B., Luthans, F., Smith, R. M., & Palmer, N. F. (2010). Impact of positive psychological capital on employee well-being over time. *Journal of Occupational Health Psychology, 15*, 17-28.
- Bailey, T., Berg, P., & Sandy, C. (2001). The effect of high-performance work practices on employee earnings in the steel, apparel, and medical electronics and imaging industries. *Industrial and Labor Relations Review, 54*, 525-543.
- Bakker, A. B. (2008). The work-related flow inventory: Construction and initial validation of the WOLF. *Journal of Vocational Behavior, 72*, 400-414.

- Bamberger, P., & Meshoulam, I. (2000). *Human resource strategy*. Newbury Park, CA: Sage.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Psychological and Social Psychology*, 51, 1173-1182.
- Bies, R. J. (2005). Are procedural justice and interactional justice conceptually distinct? In J. Greenberg & J. A. Colquitt (Eds.), *Handbook of organizational justice* (pp. 85–112). Mahwah, NJ: Lawrence Erlbaum.
- Bies, R. J., & Moag, J. (1986). Interactional justice: Communication criteria of fairness. In R. J. Lewicki, Sheppard, B. H., & Bazerman, M. H. (Ed.), *Research on negotiations in organizations* (Vol. 1, pp. 43-55). Greenwich, CT: JAI Press.
- Blader, S. L., & Tyler, T. R. (2003). A four-component model of procedural justice: Defining the meaning of a "fair" process. *Personality and Social Psychology Bulletin*, 29, 747-758.
- Blau, P. (1964). *Exchange and power in social life*. New York: Wiley.
- Boxall, P. (2012). High-performance work systems: What, why, how and for whom? *Asia Pacific Journal of Human Resources*, 50, 169–186.
- Boxall, P., Guthrie, J. P., Paauwe, J. (2016). Editorial introduction: Progressing our understanding of the mediating variables linking HRM, employee well-being and organisational performance. *Human Resource Management Journal*, 26, 103-111.
- Bozionelos, N., & Wang, L. (2007). An investigation on the attitudes of Chinese workers towards individually-based performance related reward systems. *International Journal*

*of Human Resource Management*, 18, 284-302.

Bowen, D. E., & Ostroff, C. (2004). Understanding HRM-firm performance linkages: The role of the “strength” of the HRM system. *Academy of Management Review*, 29, 203-221.

Brislin, R. W. (1986). The wording and translation of research instruments. In W. J. Lonner & J. Berry (Eds.), *Field methods in cross-cultural research* (pp. 137-164). Thousand Oaks, CA: Sage.

Bou-Llusar, J., Beltrán-Martin, I., Roca-Puig, V., & Escrig-Tena, A. B. (2016). Single- and multiple-informant research designs to examine the human resource management-performance relationship. *British Journal of Management*, 27, 646-668.

Byrne, Z. S. (1999). How do procedural and interactional justice influence multiple levels of organizational outcomes? Paper presented at the Annual Meeting of the Society for Industrial and Organizational Psychology (SIOP), Atlanta, GA, USA.

Carver, C. S., & Scheier, M. S. (2002). Optimism. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 231–243). Oxford: Oxford University Press.

Chang, P-C., Wu, T., & Liu, C-L. (2018). Do high-performance work systems really satisfy employees? Evidence from China. *Sustainability*, 10, 3360. doi:10.3390/su10103360

Chapman, E. F., Sisk, F. A., Schatten, J., & Miles, E. W. (2018). Human resource development and human resource management levers for sustained competitive advantage: Combining isomorphism and differentiation. *Journal of Management and Organization*, 24, 533-550.

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance.

*Structural Equation Modeling: A Multidisciplinary Journal*, 14, 465-504.

Colquitt, J. A. (2001). On the dimensionality of organizational justice: A construct validation of a measure. *Journal of Applied Psychology*, 86, 386-400.

Constantini, A., De Paola, A., Ceschi, A., Santori, R., Meneghini, A. M., & Di Fabio, A. (2017). Work engagement and psychological capital in the Italian public administration: A new resource-based intervention programme. *SA Journal of Industrial Psychology*, 43, a1413. doi:10.4102/sajip.v43i0.1413

Csikszentmihalyi, M., Abuhmdeh, S. & Nakamura, J. (2005). Flow. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 598-608). New York: Guilford Press.

Danford, A., & Zhao, W. (2012). Confucian HRM or unitarism with Chinese characteristics? A study of worker attitudes to work reform and management in three state-owned enterprises. *Work, Employment and Society*, 26, 839-856.

Delery, J. E. (1998). Issues of fit in strategic human resource management: Implications for research. *Human Resource Management Review*, 8, 289-310.

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86, 499-512.

Den Hartog, D. N., Boon, C., Verburg, R. M., & Croon, M. A. (2013). HRM, communication, satisfaction, and perceived performance: A cross-level test. *Journal of Management*, 39, 1637-1655.

Dai, S., & Tao, L. (2019, January 29). China's work ethic stretches beyond '996' as tech companies feel the impact of slowdown. *South China Morning Post*. Retrieved from

<https://www.scmp.com/tech/start-ups/article/2183950/chinas-work-ethic-stretches-beyond-996-tech-companies-feel-impact>

- Datu, J. A. D., King, R. B., & Valdez, J. P. M. (2018). Psychological capital bolsters motivation, engagement, and achievement: Cross-sectional and longitudinal studies. *Journal of Positive Psychology, 13*, 260-270.
- Dello Russo S., & Stoykova, P. (2015). Psychological Capital Intervention (PCI): A replication and extension. *Human Resource Development Quarterly, 26*, 329–347.
- Edwards, J. R., & Lambert, L. S. (2007). Methods for integrating moderating and mediation: A general analytical framework using moderated path analysis. *Psychological Methods, 12*, 1-22.
- Evans, W. R., & Davis, W. D. (2005). High-performance work systems and organizational performance: The mediating role of internal social structure. *Journal of Management, 31*, 758-775.
- Fan, X., Liu, Y., & Zou, X. (2018). Where there is light, there is dark: A dual process model of high-performance work systems in the eyes of employees. *Frontiers of Business Research in China, 12*, 21. doi:10.1186/s11782-018-0042-x
- Farndale, E., & Sanders, K. (2017). Conceptualizing HRM system strength through a cross-cultural lens. *International Journal of Human Resource Management, 28*, 132–148.
- Folger, R. (2001). Fairness as deonance. In S. W. Gilliland, D. D. Steiner, & D. P. Skarlicki (Eds.), *Theoretical and cultural perspectives on organizational justice* (pp. 3–34). Greenwich, CT: Information Age Publishing.
- Forgas, J. P. (Ed.). (2006). *Affect in social cognition and behavior*. New York: Psychology

Press.

Franke, F. (2015). Is work intensification extra stress? *Journal of Personnel Psychology*, 14, 17–27.

Frenkel, S., Sanders, K., & Bednall, T. (2013). Employee perceptions of management relations as influences on job satisfaction and quit intentions. *Asia Pacific Journal of Management*, 30, 7-29.

Fu, N., Bosak, J., Flood, P. C., & Ma, Q. H. (2019). Chinese and Irish professional service firms compared: Linking HPWS, organizational coordination, and firm performance. *Journal of Business Research*, 95, 266-276.

Fu, N., Flood, P. C., Bosak, J., Rousseau, D. M., Morris, T., & O'Regan, P. (2017). High-performance work systems in professional service firms: Examining the practices-resources-uses-performance linkage. *Human Resource Management*, 56, 329-352.

Fuller, C. M., Simmering, M. J., Atinc, G., Atinc, Y., & Babin, B. J. (2016). Common methods variance detection in business research. *Journal of Business Research*, 69, 3192-3198.

Gardner, T. M., & Wright, P. M. (2009) Implicit human resource management theory: A potential threat to the internal validity of human resource practice measures. *International Journal of Human Resource Management*, 20, 57-74.

Gavrilov-Jerkovic, V., Jovanovic, V., Zuljevic, D., & Brdaric, D. (2014). When less is more: A short version of the personal optimism scale and the self-efficacy optimism scale. *Journal of Happiness Studies*, 15, 455-474.

Gelens, J., Dries, N., Hofmans, J., & Pepermans, R. (2013). The role of perceived organizational justice in shaping the outcomes of talent management: A research

- agenda. *Human Resource Management Review*, 23, 342-353.
- Gkorezis, P., Georgiou, L., & Theodorou, M. (2018). High-performance work practices and nurses' intention to leave: The mediating role of organizational cynicism and the moderating role of human resource management-related educational background. *International Journal of Human Resource Management*, 29, 465-484.
- Gong, Y., Law, K. S., Chang, S., & Xin, K. R. (2009). Human resources management and firm performance: The differential role of managerial affective and continuance commitment. *Journal of Applied Psychology*, 94, 263-275.
- Grant, A., Christianson, M., & Price, R. (2007). Happiness, health, or relationships? Managerial practices and employee well-being tradeoffs. *Academy of Management Executive*, 21, 51-63.
- Greenberg, J. (1990). Organizational justice: Yesterday, today, and tomorrow. *Journal of Management*, 16, 399-432.
- Greenberg, J. (1993). The social side of fairness: Interpersonal and informational classes of organizational justice. In R. Cropanzano (Ed.), *Justice in the workplace: Approaching fairness in human resource management* (pp. 79-103). Hillsdale, NJ: Erlbaum.
- Griffin, B. (2010). Multilevel relationships between organizational-level incivility, justice and intention to stay. *Work and Stress*, 24, 309-323.
- Guest, D. E. (2017). Human resource management and employee well-being: Towards a new analytic framework. *Human Resource Management Journal*, 27, 22-38.
- Halbesleben, J. R. B., Neveu, J-P., Paustian-Underdahl, S. C., & Westman, M. (2014). Getting to the "COR": Understanding the role of resources in conservation of resources theory.



- Journal of Management*, 40, 1334-1364.
- Halbesleben, J. R. B., & Wheeler, A. R. (2015). To invest or not? The role of coworker support and trust in daily reciprocal gain spirals of helping behavior. *Journal of Management*, 41, 1628-1650.
- Harter, J. K., & Schmidt, F. L. (2008). Conceptual versus empirical distinctions among constructs: Implications for discriminant validity. *Industrial and Organizational Psychology*, 1, 36-39.
- Heffernan, M., & Dundon, T. (2016). Cross-level effects of high-performance work systems (HPWS) and employee well-being: The mediating effect of organisational justice. *Human Resource Management Journal*, 26, 211-231.
- Hsu, M. L. A., & Chen, F. H. (2017). The cross-level mediating effect of psychological capital on the organizational innovation climate-employee innovative behavior relationship. *Journal of Creative Behavior*, 51, 128-139.
- Hobfoll, S. E. (1988). *The ecology of stress*. New York: Hemisphere.
- Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44, 513-524.
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology: An international Review*, 50, 337-369.
- Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, 6, 307-324.
- Hobfoll, S. E. (2011). Conservation of resource caravans and engaged settings. *Journal of*

*Occupational and Organizational Psychology*, 84, 116-122.

Hobfoll, S. E., Johnson, R. J., Ennis, N., & Jackson, A. P. (2003). Resource loss, resource gain, and emotional outcomes among inner city women. *Journal of Personality and Social Psychology*, 84, 632-643.

Hong, Y., Jiang, Y., Liao, H., & Sturman, M. C. (2017). High performance work systems for service quality: Boundary conditions and influence processes. *Human Resource Management*, 56, 747-767.

Horgan, J., & Mühlau, P. (2006). Human resource systems and employee performance in Ireland and the Netherlands: A test of the complementarity hypothesis. *International Journal of Human Resource Management*, 17, 414-439.

Huang, L.-C., Ahlstrom, D., Lee, A. Y.-P., Chen, S.-Y., & Hsieh, M.-J. (2016). High performance work systems, employee well-being, and job involvement: An empirical study. *Personnel Review*, 45, 296-314.

Huselid, M. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38, 635-672.

James, L. R., & Brett, J. M. (1984). Mediators, moderators, and tests for mediation. *Journal of Applied Psychology*, 69, 307-321.

Jiang, K., Lepak, D. P., Hu, J., & Baer, J. C. (2012). How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanism. *Academy of Management Journal*, 55, 1264–1294.

Jiang, K. F., Takeuchi, R., & Lepak, D. P. (2013). Where do we go from here? New

perspectives on the black box in strategic human resource management research.

*Journal of Management Studies*, 50, 1448-1480.

Karatepe, O. M., & Talebzadeh, N. (2016). An empirical investigation of psychological capital among flight attendants. *Journal of Air Transport Management*, 55, 193–202

Kehoe, R. R., & Wright, P. M. (2013). The impact of high-performance human resource practices on employees' attitudes and behaviors. *Journal of Management*, 39, 366-391.

Kernan, M. C., & Hanges, P. J. (2002). Survivor reactions to reorganization: Antecedents and consequences of procedural, interpersonal, and informational justice. *Journal of Applied Psychology*, 87, 916-928.

Lavelle, J. J., Rupp, D. E., & Brockner, J. (2007). Taking a multifoci approach to the study of justice, social exchange, and citizenship behavior: The target similarity model. *Journal of Management*, 33(6), 841-866.

Lepak, D. P., Liao, H., Chung, Y., & Harden, E. E. (2006). A conceptual review of human resource management systems in strategic human resource management research. *Research in Personnel and Human Resources Management*, 25, 217–271.

Li, A., & Cropanzano, R. (2009). Fairness at the group level: Justice climate and intraunit justice climate. *Journal of Management*, 35, 564–599.

Liao, H., Toya, K., Lepak, D. P., & Hong, Y. (2009). Do they see eye to eye? Management and employee perspectives of high-performance work systems and influence processes on service quality. *Journal of Applied Psychology*, 94, 371-391.

Liao, H., & Rupp, D. E. (2005). The impact of justice climate and justice orientation on work outcomes: A cross-level multifoci framework. *Journal of Applied Psychology*, 90, 242-

256.

- Liu, D., Chen, X. P., & Yao, X. (2011). From autonomy to creativity: A multilevel investigation of the mediating role of harmonious passion. *Journal of Applied Psychology, 96*, 294-309.
- Liu, D., Liao, H., & Loi, R. (2012). The dark side of leadership: A three-level investigation of the cascading effect of abusive supervision on employee creativity. *Academy of Management Journal, 55*, 1187-1212.
- Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: Measurement and relationship with performance satisfaction. *Personnel Psychology, 60*, 541-572.
- Luthans, F., Luthans, K., & Luthans, B. (2004). Positive psychological capital: Going beyond human and social capital. *Business Horizons, 47*(1), 45-50.
- Luthans, F., & Youssef, C. M. (2004). Human, social, and now positive psychological capital management. *Organizational Dynamics, 33*, 143-160.
- Luthans, F., & Youssef-Morgan, C. M. (2017). Psychological capital: An evidence-based approach. *Annual Review of Organizational Psychology and Organizational Behavior, 4*, 339-366.
- Luthans, F., Youssef, C. M., & Avolio, B. J. (2007). *Psychological capital: Developing the human competitive edge*. Oxford: Oxford University Press.
- Luthans, F., Youssef-Morgan, C. M., & Avolio, B. J. (2015). *Psychological capital and beyond*. Oxford: Oxford University Press.
- MacKinnon, D. P., Fritz, M. S., Williams, J., & Lockwood, C. M. (2007). Distribution of the

- product confidence limits for the indirect effect: Program PRODCLIN. *Behavior Research Methods*, 39, 384-389.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, 7, 83-104.
- Messersmith, J. G., Patel, P. C., Lepak, D. P., & Gould-Williams, J. S. (2011). Unlocking the black box: Exploring the link between high-performance work systems and performance. *Journal of Applied Psychology*, 96, 1105-1118.
- Mariappanadar, S. (2016). Health harm of work from the sustainable HRM perspective: Scale development and validation. *International Journal of Manpower*, 37, 924-944.
- Masten, A. S., & Reed, M.G. J. (2002). Resilience in development. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 74–88). Oxford: Oxford University Press.
- Meyer, J., Allen, N. J., & Smith, C. A. (1993). Commitment to organizations and occupations: Extension and test of three-component conceptualization. *Journal of Applied Psychology*, 78, 538-551.
- Mills, M. J., Fleck, C. R., & Kozikowski, A. (2013). Positive psychology at work: A conceptual review, state-of-practice assessment, and a look ahead. *Journal of Positive Psychology*, 8, 153-164.
- Naumann, S. E., & Bennett, N. (2000). A case for procedural justice climate: Development and test of a multilevel model. *Academy of Management Journal*, 43, 881–889.
- Newman, A., Ucbasaran, D., Zhu, F., & Hirst, G. (2014). Psychological capital: A review and

synthesis. *Journal of Organizational Behavior*, 35, S1120-S1138.

Nishii, L. H., & Wright, P. M. (2008). Variability within organizations: Implications for strategic human resources management. In D. B. Smith (Ed.), *The people make the place: Dynamic linkages between individuals and organizations* (pp. 225-248).

Mahwah, NJ: Erlbaum.

Ogbonnaya, C., Daniels, K., Connolly, S., & Van Veldhoven, M. (2017). Integrated and isolated impact of high-performance work practices on employee health and well-being: A comparative study. *Journal of Occupational Health Psychology*, 22, 98–114.

Omari, M., & Paull, M. (2015). Public sector work intensification and negative behaviors. *Journal of Organizational Change Management*, 28, 603-613.

Paek, S., Schuckert, M., Kim, T. T., & Lee, G. (2015). Why is hospitality employees' psychological capital important? The effects of psychological capital on work engagement and employee morale. *International Journal of Hospitality Management*, 50, 9-26.

Peccei, R., Van de Voorde, K., & Van Veldhoven, M. (2013). HRM, well-being and performance: A theoretical and empirical review. In J. Paauwe, D. Guest & P. Wright (Eds.), *HRM and Performance: Achievements and Challenges* (pp. 15–45). Chichester, UK: Wiley.

Pfeffer, J., & Veiga, J. F. (1999). Putting people first for organizational success. *Academy of Management Executive*, 13, 37-48.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended

- remedies. *Journal of Applied Psychology*, 88, 879-903.
- Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12, 531-544.
- Posthuma, R. A., Campion, M. C., Masimova, M., & Campion, M. A. (2013). A high performance work practices taxonomy: Integrating the literature and directing future research. *Journal of Management*, 39, 1184-1220.
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42, 185-227.
- Prieto, I. M., & Santana, P. P. M. (2012). Building ambidexterity: The role of human resource practices in the performance of firms from Spain. *Human Resource Management*, 51, 189-211.
- Rafferty, A. E., & Restubog, L. D. (2011). The influence of abusive supervisors on followers' organizational citizenship behaviours: The hidden costs of abusive supervision. *British Journal of Management*, 22, 270-285.
- Renkema, M., Meijerink, J., & Bondarouk, T., (2017). Advancing multilevel thinking in human resource management research: Applications and guidelines. *Human Resource Management Review*, 27, 397-415.
- Russell, Z. A., Steffensen, D. S., Ellen, B. P., Zhang, L., Bishoff, J. D., & Ferris, G. R. (2018). High performance work practice implementation and employee impressions of line manager leadership. *Human Resource Management Review*, 28, 258-270.
- Rupp, D. E., & Cropanzano, R. (2002). Multifoci justice and social exchange relationships.

*Organizational Behavior and Human Decision Processes*, 89, 925–946.

Saridakis, G., Lai, Y., & Cooper, C. L. (2017). Exploring the relationship between HRM and firm performance: A meta-analysis of longitudinal studies. *Human Resource Management Review*, 27, 87-96.

Schneider, S. L. (2001). In search of realistic optimism: Meaning, knowledge, and warm fuzziness. *American Psychologist*, 56, 250-263.

Scott, B. A., Colquitt, J. A., & Paddock, E. L. (2009). An actor-focused model of justice rule adherence and violation: The role of managerial motives and discretion. *Journal of Applied Psychology*, 94, 756-769.

Seligman, M. E. P. (1998). *Learned optimism*. New York: Pocket Books.

Shantz, A., Arevshatian, L., Alfes, K., & Bailey, C. (2016). The effect of HRM attributions on emotional exhaustion and the mediating roles of job involvement and work overload. *Human Resource Management Journal*, 26, 172-191.

Sikora, D. M., & Ferris, G. R. (2014). Strategic human resource practice implementation: The critical role of line management. *Human Resource Management Review*, 24, 271-281.

Snape, E., & Redman, T. (2010). HRM practices, organizational citizenship behavior, and performance: A multi-level analysis. *Journal of Management Studies*, 47, 1219-1247.

Snyder, C. R. (1994). *The psychology of hope: You can get there from here*. New York: Free Press.

Snyder, C. R. (2002). Hope theory: Rainbows in the mind. *Psychological Inquiry*, 13, 249–276.

Snyder, C. R., Irving, L., & Anderson, J. (1991). Hope and health. In C. R. Snyder & D. R.



- Forsyth (Eds.), *Handbook of social and clinical psychology* (pp. 285-305). Elmsford, NY: Pergamon.
- Su, Z. X., & Wright, P. M. (2012). The effective human resource management system in transitional China: A hybrid of commitment and control practices. *International Journal of Human Resource Management*, 23, 2065-2086.
- Subramony, M. (2009). A meta-analytic investigation of the relationship between HRM bundles and firm performance. *Human Resource Management*, 48, 745-768.
- Sun, L. Y., Aryee, S., & Law, K. S. (2007). High-performance human resource practices, citizenship behavior, and organizational performance: A relational perspective. *Academy of Management Journal*, 50, 558-577.
- Takeuchi, R., Chen, G., & Lepak, D. P. (2009). Through the looking glass of a social system: Cross-level effects of high-performance work systems on employees' attitudes. *Personnel Psychology*, 62, 1-29.
- Takeuchi, R., Lepak, D. P., Wang, H., & Takeuchi, K. (2007). An empirical examination of the mechanisms mediating between high-performance work systems and the performance of Japanese organizations. *Journal of Applied Psychology*, 92, 1069-1083.
- Takeuchi, R., Way, S. A., & Tian, A. W. (2018). Cross-level effects of support climate: Main and moderating roles. *Human Resource Management*, 57, 105-1218.
- Ten Brummelhuis, L. L., & Bakker, A. B. (2012). A resource perspective on the work-home interface: The work-home resources model. *American Psychologist*, 67, 545-556.
- Townsend, K., Wilkinson, A., Cameron, A., & Bamber, G. (2012). Mixed signals in HRM: The HRM role of hospital line managers. *Human Resource Management Journal*, 22,

267-282.

- Tsui, A. S., Egan, T. D., & O'Reilly, C. A. (1992). Being different: Relational demography and organizational attachment. *Administrative Science Quarterly*, 37, 549-579.
- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology*, 86, 320-333.
- Tyler, T. R., & Bies, R. (1990). Beyond formal procedures: The interpersonal aspects of procedural justice. In J. S. Carroll (Ed.), *Applied social psychology and organizational settings* (pp. 77-98). Hillsdale, NJ: Erlbaum.
- Van de Voorde, K., Paauwe, J., & van Veldhoven, M. (2012). Employee well-being and the HRM-performance relationship: A review of quantitative studies. *International Journal of Management Reviews*, 14, 391-407.
- Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods*, 3, 4-70.
- Walumbwa, F. O., Hartnell, C., & Oke, A. (2010). Servant leadership, procedural justice climate, service climate, employee attitudes, and organizational citizenship behavior: A cross-level investigation. *Journal of Applied Psychology*, 95, 517-529.
- Walumbwa, F. O., Wu, C., & Orwa, B. (2008). Contingent reward transactional leadership, work attitudes, and organizational citizenship behavior: The role of procedural justice climate perceptions and strength. *Leadership Quarterly*, 19, 251-265.
- Weigl, M., Hornung, S., Parker, S. K., Petru, R., Glaser, J., & Angerer, P. (2010). Work

engagement accumulation of task, social, personal resources: A three-wave structural equation model. *Journal of Vocational Behavior*, 77, 140-153.

Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes, and consequences of affective experiences at work. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (vol. 18, pp. 1–74). Greenwich, CT: Elsevier Science/JAI Press.

Wright, P. M., Gardner, T. M., Moynihan, L. M., & Allen M. R. (2005). The relationship between HR practices and firm performance: Examining causal order. *Personnel Psychology*, 58, 409-466.

Wu, P.-C., & Chaturvedi, S. (2009). The role of procedural justice and power distance in the relationship between high performance work systems and employee attitudes: A multilevel perspective. *Journal of Management*, 35, 1228-1247.

Wu, M., Huang, X., Li, C., & Liu, W. (2012). Perceived interactional justice and trust-in-supervisor as mediators for paternalistic leadership. *Management and Organization Review*, 8, 97-121.

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Reciprocal relationships between job resources, personal resources, and work engagement. *Journal of Vocational Behavior*, 74, 235-244.

Youssef, C. M., & Luthans, F. (2013). Developing psychological capital in organizations: Cognitive, affective and conative contributions of happiness. In S. A. David, I. Boniwell, & A. C. Ayers (Eds.), *Oxford handbook of happiness* (pp. 751-766). Oxford: Oxford University Press.

- Yuan, L. (2017, February 22). China's grueling formula for success: 9-9-6. *The Wall Street Journal*. Retrieved from <https://www.wsj.com/articles/long-days-a-staple-at-chinese-tech-firms-1487787775>
- Zatzick, C. D., & Iverson, R. D. (2011). Putting employee involvement in context: A cross-level model examining job satisfaction and absenteeism in high-involvement work systems. *International Journal of Human Resource Management*, 22, 3462-3476.
- Zhang, J., Akhtar, M. N., Bal, P. M., Zhang, Y., & Talat, U. (2018). How do high-performance work systems affect individual outcomes: A multilevel perspective. *Frontiers in Psychology*, 9, 596. doi: 10.3389/fpsyg.2018.00586
- Zhong, L., Wayne, S. J., & Liden, R. C. (2016). Job engagement, perceived organizational support, high-performance human resource practices, and cultural value orientations: A cross-level investigation. *Journal of Organizational Behavior*, 37, 823-844.

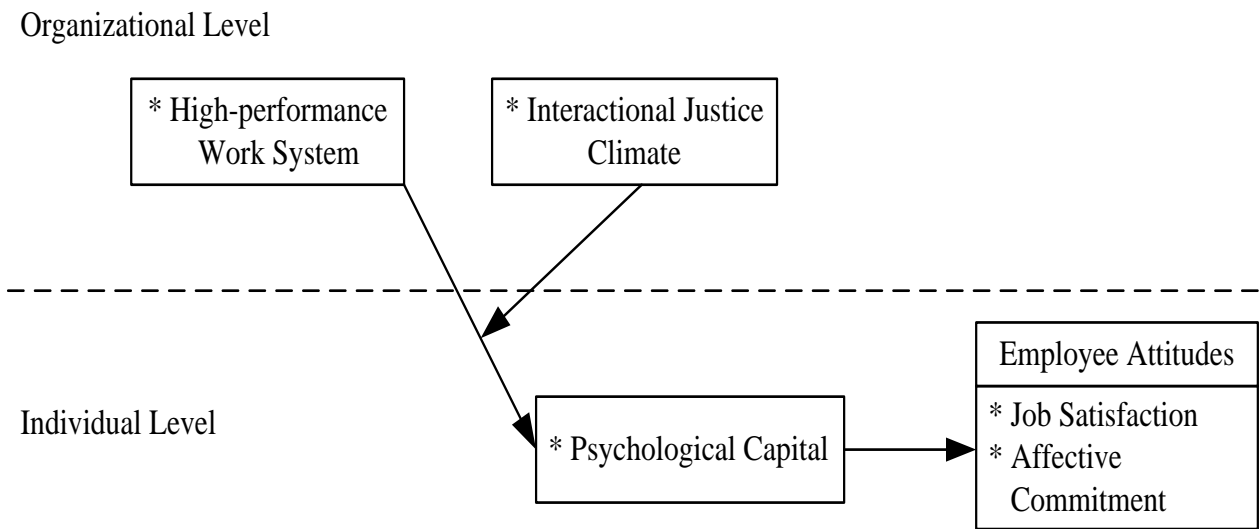


Figure 1. The conceptual multi-level model.

Table 1. Means, standard deviations and inter-correlations ( $N = 569$  employees from 44 firms).

Variables	<i>Mean</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. Gender	0.59	0.41	—								
2. Age	34.88	7.24	.15*	—							
3. Educational level	4.54	1.71	-.08	-.20**	—						
4. Organizational tenure	5.75	4.60	.07	.67**	-.01	—					
5. Unit size	12.93	7.79	.01	.05	.13*	.07	—				
6. HPWS	4.85	0.77	-.06	-.03	-.22**	-.11	.15*	—			
7. Interactional justice climate	5.16	0.95	.02	-.05	.01	-.12	.03	.42**	—		
8. PsyCap	4.72	0.91	.01	-.06	.03	-.12	.14*	.29**	.49**	—	
9. Job satisfaction	4.94	0.84	.11	.02	-.13*	-.13*	.02	.50**	.53**	.45**	—
10. Affective commitment	5.10	1.04	-.01	.02	-.06	-.07	-.03	.46**	.52**	.35**	.68**

\*  $p < .05$ , \*\*  $p < .01$ .

Table 2. Results of hierarchical linear modelling analysis.

Variables	PsyCap			Dependent Variables							
				Job Satisfaction				Affective Commitment			
	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11
Intercept ( $\gamma_{00}$ )	4.65**	4.65**	4.69**	4.78**	4.79**	4.82**	4.80**	4.97**	4.99**	5.05**	5.01**
<i>Level 1 control variables</i>											
Gender ( $\gamma_{10}$ )	.05	.05	.07	.16*	.11	.09	.08	-.02	-.03	-.04	-.07
Age ( $\gamma_{20}$ )	.03	.05	.06	.08	.07	.08	.04	.06	.07	.06	.04
Educational level ( $\gamma_{30}$ )	.05	.04	.05	-.06	-.04	-.06	-.07	-.05	-.06	-.10	-.11
Organizational tenure ( $\gamma_{40}$ )	-.08	-.07	-.09	-.12	-.09	-.09	-.07	-.06	-.05	-.07	.05
<i>Level 1 mediators</i>											
Psychological Capital (PsyCap) ( $\gamma_{50}$ )						.52**	.44**			.50**	.39**
<i>Level 2 control variables</i>											
Organizational size ( $\gamma_{01}$ )	.14*	.11	.08	.07	.07	.05	.09	.07	.04	.09	.05
Organizational age ( $\gamma_{02}$ )	.08	.06	.04	.06	.09	.07	.06	.08	.07	.07	.06
<i>Level 2 independent variable</i>											
HPWS ( $\gamma_{03}$ )		.28**	.13		.44**		.30**		.39**		.18*
<i>Level 2 moderator</i>											
Interactional Justice Climate ( $\gamma_{04}$ )			.37**				.34**				.45**
<i>Cross-level Interaction</i>											
HPWS×Interactional Justice Climate ( $\gamma_{05}$ )			.31*				.20*				.33*
$R^2$	.02	.07	.14	.05	.11	.11	.26	.04	.10	.12	.22

\*  $p < .05$ , \*\*  $p < .01$ .

Table 3. HLM results: The mediated moderation effects based on moderated path analysis.

Hypothesis/variable	HLM results			
	HPWS (X) → PsyCap (M) → Job Satisfaction (Y1)			
Moderator variable: interactional justice climate	stage		effect	
	First	Second	Direct	Indirect
	$P_{M,X}P_{M,X}$	$P_{Y1,M}P_{Y1,M}$	$P_{Y1,X}P_{Y1,X}$	$P_{M,X} \times P_{Y1,M}P_{M,X} \times P_{Y1,M}$
Low (-1 <i>SD</i> )	.15**	.50**	.37**	.08*
High (+1 <i>SD</i> )	.61**	.47**	.52**	.29**
Differences low and high	— .46**	.03	— .15**	— .21**
	HPWS (X) → PsyCap (M) → Affective commitment (Y2)			
Moderator variable: interactional justice climate <sup>b</sup>	stage		effect	
	First	Second	Direct	Indirect
	$P_{M,X}P_{M,X}$	$P_{Y2,M}P_{Y2,M}$	$P_{Y2,X}P_{Y2,X}$	$P_{M,X} \times P_{Y2,M}P_{M,X} \times P_{Y2,M}$
Low (-1 <i>SD</i> )	.15**	.53**	.20**	.08*
High (+1 <i>SD</i> )	.61**	.40**	.44**	.24**
Differences low and high	— .46**	.13*	— .24**	— .16**

\*  $p < .05$ , \*\*  $p < .01$ .

$P_{M,X}$ : path from HPWS to PsyCap;  $P_{Y1,M}$ : path from PsyCap to job satisfaction;  $P_{Y2,M}$ : path from PsyCap to affective commitment;  $P_{Y1,X}$ : path from HPWS to job satisfaction;  $P_{Y2,X}$ : path from HPWS to affective commitment.



Figure 2. The interactive effect of HPWS and the interactional justice climate on PsyCap.

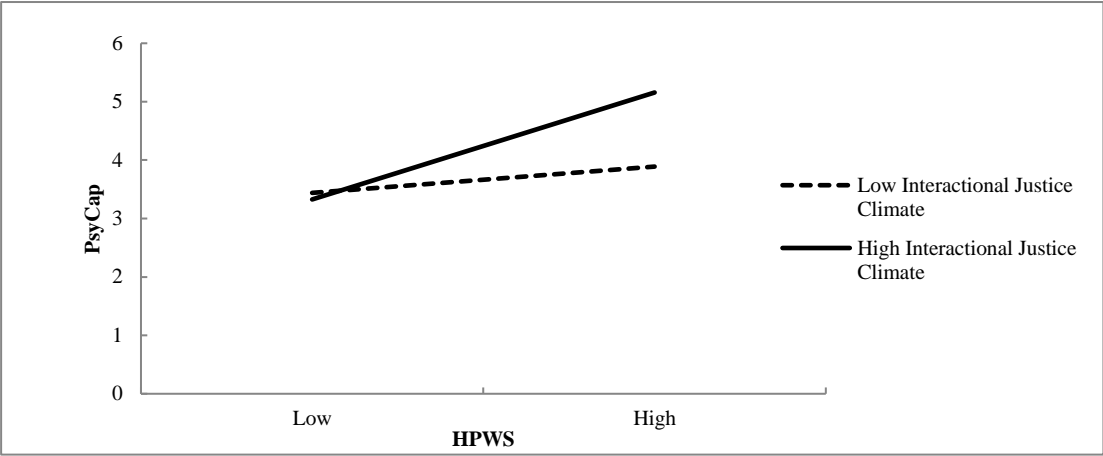


Figure 3. The interactive effect of HPWS and the interactional justice climate on job satisfaction.

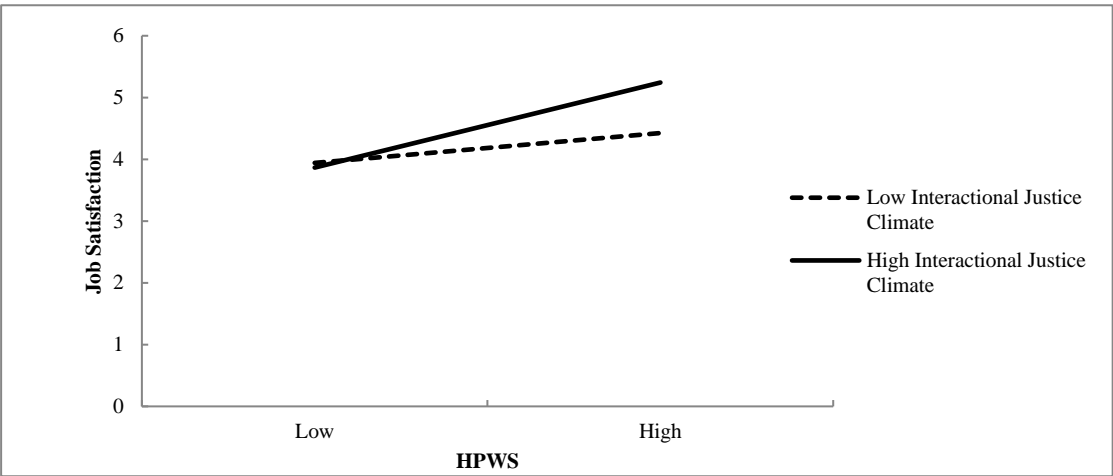
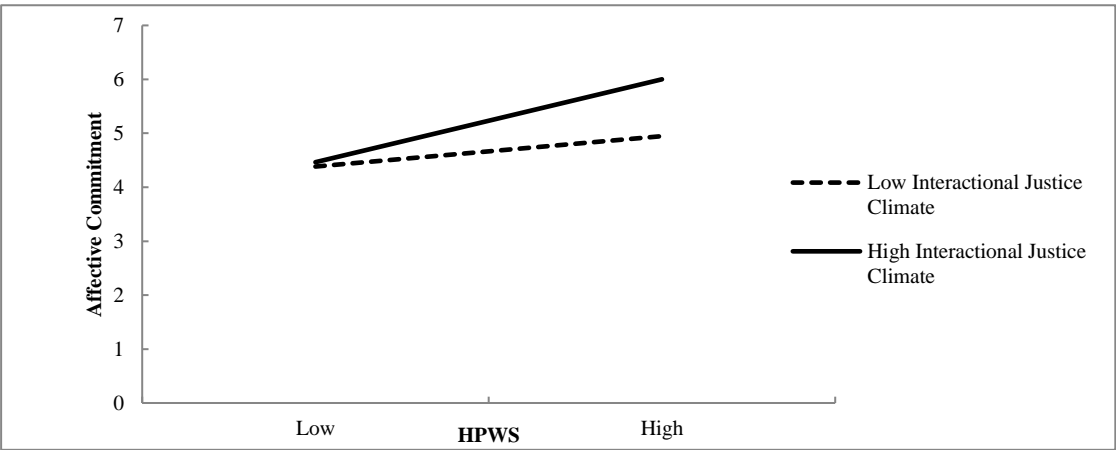


Figure 4. The interactive effect of HPWS and the interactional justice climate on affective commitment.



## Appendix

The High Performance Work Systems scale.

1. More time and money is spent on employee training compared to our competitors.
2. Employees are provided with systematically structured training.
3. Both new and old employees are provided with systematically structured training.
4. Training programs are evaluated on a regular basis.
5. Regular surveys are conducted on employee attitudes and opinions.
6. A constructive feedback system is in place.
7. Teams where employees participate in management have been established.
8. Employees are empowered to make decisions .
9. Employee performance is based on objective, quantifiable results.
10. Results-based reward and punishment practices are utilized.
11. Pay is linked to employee performance appraisals.
12. There are concrete and clear performance appraisal indicators in place for employees.
13. Managers can be demoted according to performance.
14. There is open competition for critical positions.
15. We implement more strict discipline management than our competitors.
17. We dismiss or transfer employees by a forced ranking.
18. We focus on general competency (learning capacity) rather than skills in recruiting employees.

19. Employees are recruited from a large job market pool.
20. Employees have clear communication of news through multiple channels (e.g., e-mail and voice mail bulletins, intranet, newsletters).
21. The business strategy of the organization is frequently communicated to employees.
22. Short-term incentive compensation is offered to employees (e.g., performance bonus).
23. Key talents are offered competitive remuneration packages.